SYNTHESIS AND CHARACTERIZATION OF PALM BASED POLYURETHANE FOAM WITH CELLULOSE AS A FILLER

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ABSTRACT

SYTHESIS AND CHARACTERIZATION OF PALM BASED POLYURETHANE FOAM WITH CELLULOSE AS A FILLER

The study is carried out to produce and characterize of polyurethane foam with cellulose (PU-Cel) from palm kernel oil-based polyol. Polyurethane was produced by reacting monoester-OH palm kernel oil with 2,4-diphenylmethane diisocyanate in the ration of 1 : 1. Addition of cellulose in polyurethane system was at 10 %, 20 %, 30 % and 40 % by weight to the polyurethane system and then was mixed using the mechanical stirrer. Mechanical properties of PU-Cel foam were tested by using density test and hardness test. Morphological of PU-Cel foam were observed by using microscope. It found that the optimum mechanical properties of PU-Cel foam achieved with increased amount of cellulose up to 30 % part by weight. Based on the micrograph analysis, 30 % cellulose in the PU-Cel foam showed uniform dispersion. Addition of cellulose was necessary to increase the mechanical properties of PU-Cel foam based palm kernel oil.